

Betsy Gun Manual

Need to Know

Safety

- 1.) Have all participants within 50 yards wear some form of hearing protection or cover their ears
- 2.) Those using firing the betsy gun must be wearing eye protection, ear protection, and shoes
- 3.) Preferably those operating the betsy gun are heavy (>150lb)
 - a. This minimizes amount of debris shooting out from the sides of the betsy gun
- 4.) Have those not firing the betsy gun to be at least 15 yards away to avoid being hit from debris

Firing

- 1.) Clear the area surrounding the betsy gun
- 2.) Open the chamber of the betsy gun by pulling the handle
- 3.) Remove the cleaning rod with bore swab and run it down the chamber till it hits the ground
- 4.) Remove the cleaning rod and return it to its holder in one of the handles
- 5.) Load a SLUG round into the chamber
- 6.) Close the chamber by pushing the handle back to the original position (vertical)
- 7.) The firing pin is now cocked and ready to fire
- 8.) Count to 3 loud enough for those around you to hear
- 9.) Pull the silver ring located at the top of the betsy gun
- 10.) The gun will recoil upwards, and it is better to stay to on top of the betsy gun to avoid being hit by debris kicked up from the shot.
- 11.) Remove the fired shell by opening the chamber (it will eject vertically)

In Case of a Misfire

- 1.) DO NOT OPEN THE CHAMBER
- 2.) Let the round sit in the chamber for 1 minute, but be prepared for the round to go off at any moment
- 3.) At the end of the minute, open the chamber, and let the unfired round eject
- 4.) Put the unfired round back in the chamber, and attempt to fire the round again

If It Fires

- a.) Continue as normal

If It Does Not Fire

- a.) Let the round sit in the chamber for 1 minute, but be prepared for the round to go off at any moment
- b.) Open the chamber to allow the unfired round to eject
- c.) Remove the round
- d.) Dispose of round safely

The Firing Sequence

When a round is fired, a series of reactions occurs. When the trigger is pulled, a spring loaded firing pin is released (Figure 1).

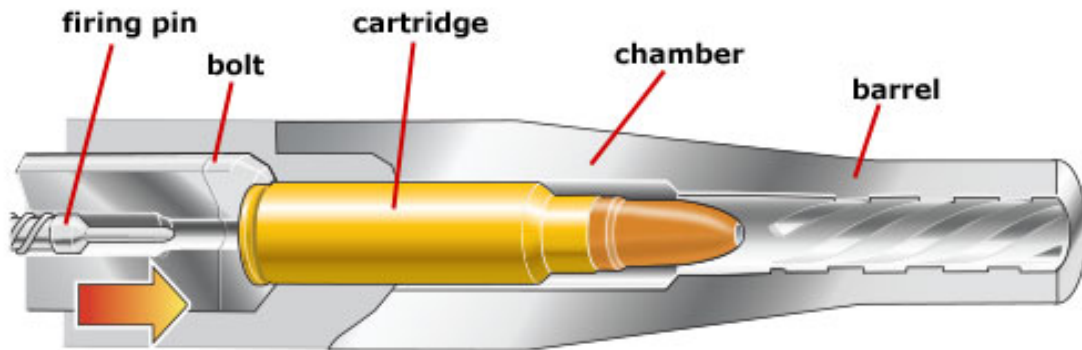


Figure 1. Cutaway of a cartridge in a chamber. Immediately after the trigger is pulled, a firing pin is released from spring tension and moves down the firing pin channel.

The firing pin then moves down the firing pin channel towards the base of the cartridge. The firing pin hits the primer of cartridge and dents it in. This crushes a chemical against an anvil contained within the primer. The primer then shoots a flame into the base of the cartridge (Figure 2).

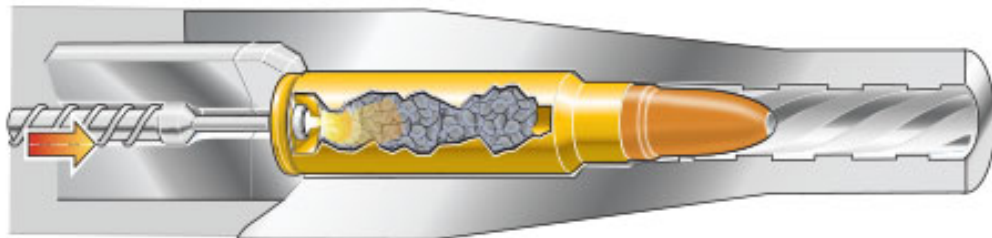


Figure 2. Cutaway of a firing pin striking a primer.

The flame ignites the gunpowder of the cartridge, causing it to burn. The burning of the powder creates hot gases to expand. The expanding gases cause the pressure to increase within the cartridge and pushes the wad and slug (Figure 4) down the barrel (Figure 3). The cutaway is that of a rifle round, but the same principles hold true.



Figure 3. A round firing down the barrel. After the gunpowder is ignited, the expanding gases cause the projectile to be pushed down the barrel.

The wad and slug move together as a single unit. The purpose of the wad is to shield the slug from the hot gases from the burning powder. Without the wad, part of the lead slug would melt from the hot gases.

Ammunition

A shotgun shell is comprised of a few main components (Figure 4). At the base of the shell is the brass head. The brass head holds the primer in place and the powder charge. Forward of the head is a plastic case that holds the wad and slug.

The Shotgun Slug



Figure 4. Cutaway of a shotgun shell showing the main components.

The ammunition for the Betsy Gun is an 8-gauge shotgun slug. This slug is not interchangeable with other commonly available shotgun ammunition (12-gauge, 10-gauge, .410). The side of the cartridge should be free of markings. If there are markings that say 12 gauge, 2 $\frac{3}{4}$ oz #7, or any markings, it is the wrong load and should not be used in the Betsy Gun. On the correct load, there markings on the bottom of the cartridge (the headstamp) should read "REMINGTON INDUSTRIAL" (Figure 5.). If you are unsure if you are using the right ammunition, STOP. DO NOT LOAD it into the Betsy Gun.

The slug is held in place by a slight crimp of the plastic case (Figure 4). This is to hold everything together as a unit. You do not need to worry about the cartridge

coming apart – the crimp is more than enough to hold all the components of the cartridge together.



Figure 5. The headstamp of the correct 8-gauge shell. The only markings on the shell read "Remington Industrial".

Comparison of Different Betsy Gun Loads



Figure 6. Three Different Betsy Gun Loads. From left to right, wax blank-no crimp, cardboard blank-crimped, lead slug-crimped.

There are a few different Betsy Gun loads available in 8-gauge (Figure 6). Two types of blanks are available: a wax blank and a cardboard blank. These blanks should be used for function testing of the betsy gun. Both of these rounds are interchangeable, and it does not matter which one you use for function testing.

The one used for measurements is the lead slug load (Figure 6). It shoots a 3oz lead slug into the ground.

Light Primer Strikes

Occasionally when firing the Betsy Gun, a light primer strike can occur (Figure 7). When this happens, the firing pin strikes the primer of the cartridge, but for whatever reason, the round does not go off. If this happens, STOP.

There is a chance that the round has a slow primer. Wait 1 minute, with the anticipation that the round could go off at any moment. After the 1 minute is up, it is assumed that the round will no longer go off. At this point:

1. Open the chamber of the Betsy gun
2. The round will eject
3. Re-insert the round back into the chamber
4. Perform the firing sequence again

Over 80% of the time, when a light primer strike occurs, re-chambering the round and attempting to fire the round again results in it discharging.



Figure 7. An 8-gauge shell with a light primer strike.

If the cartridge does not go off a second time, eject the round from the chamber. You now have two options, you can bury that round 6 inches in the ground, or you can bring the round back with you and give it to waste management for disposal. Care must be taken to not mix it with your good ammo.

Firing

When firing the Betsy Gun, it is beneficial to have two heavy people operating it. This is because the heavier the operators, the less the Betsy Gun will lift off the ground. This is important because as the Betsy Gun is fired, debris can shoot out from the lead slug hitting the ground. Having heavier operators minimizes the amount of debris being shot out.

Due to the potential for the debris to fly out from under the Betsy Gun, the operators should be wearing boots and pants. The Betsy gun comes off the ground, and if the operator loses balance, the operator can step off of it prematurely. This would expose the operator to debris flying out from underneath the Betsy Gun. Pants and boots are worn to protect the operator from being hurt by this flying debris.

Clearing the Bore

Ensuring that the bore is clear is essential to the safety of the operators and all those nearby. Clearing the bore is a simple process and must be completed immediately before each firing.

- 1.) Open the chamber by pulling the handle down
- 2.) Look down the chamber to see if it is possible to see any obstructions
- 3.) Remove the chamber cleaning brush from the holder spot on the handle
- 4.) Run the brush down the bore of the Betsy gun
- 5.) Ensure that the brush goes all the way through to the floor without resistance
- 6.) Pull the brush back up and replace in the holder

Troubleshooting

Light Primer Strikes

- The firing pin did not get a good hit on the primer, check to make sure the firing pin channel is clear of debris or CLP
- The chamber was not fully closed all the way as indicated by a primer hit off center (Figure 7)

Slow primer

- Sometimes primers do not ignite immediately upon being struck
 - Sometimes the primers ignite after a few seconds, sometimes a little bit later. That is why when a round does not fire upon being struck by the firing pin, the user must wait a minute before opening the chamber

Dead primer

A dead primer is when the firing pin gets a good hit on the primer, but the primer does not go off

-Occasionally a dead primer is encountered when dealing with ammunition, but it is usually rare

-Dead primers can occur due to:

-improper storage of ammunition

-oil leaking into the primer

-for this reason, do not put oil on the ammunition

-powder is wet

Maintenance

Minimal maintenance is required for storage of the betsy gun. The most important thing is to spray some CLP on parts to prevent rust and corrosion (Figure 8). CLP stands for cleaner, lubricant, preservative. It is an all purpose gun oil that inhibits rust, and can be used for cleaning and for general firearms usage.



Figure 8. CLP (cleaner, lubricant, preservative).

You can spray CLP on the chamber, handle, and sliding surfaces of the betsy gun. A light coating will do, and care should be taken to not put so much as to pool the CLP on the firearm. As a basic rule of thumb, you can apply, and then lightly wipe with a towel. Too much CLP can attract debris and make the action gritty.

Do not apply CLP to the firing pin channel. The CLP could slow down the firing pin just enough to result in light primer strikes. CLP can also be used to wet the bore brush before running it down the bore to ensure the bore is protected from rust before storage.